

Developmental and Comparative Immunology

List of Contents
Author and Keyword Index
Volume 19, 1995



Pergamon

Developmental and Comparative Immunology

ONTOGENY • PHYLOGENY • AGING

The Official Journal of the International Society of Developmental and Comparative Immunology

EDITORS IN CHIEF

L. William Clem, *USA*

Gregory W. Warr, *USA*

FOUNDING EDITOR IN CHIEF

Edwin L. Cooper, *USA*

EDITORIAL ADVISORY BOARD

Ainsworth, A. J., *USA*
Anderson, R. S., *USA*
Bayne, C. J., *USA*
Boyd, R., *Australia*
Charlemagne, J., *France*
Cohen, N., *USA*
DeLuca, D., *USA*
Flajnik, M., *USA*
Higgins, D. A., *Hong Kong*
Hoffmann, J., *France*
Horton, J. D., *UK*

Hultmark, D., *Sweden*
Kaattari, S., *USA*
Karp, R., *USA*
Koppenheffer, T. L., *USA*
Miller, N. W., *USA*
Muramatsu, S., *Japan*
Natori, S., *Japan*
Pilström, L., *Sweden*
Raison, R., *Australia*
Ratcliffe, N. A., *UK*
Renwanz, L., *Germany*

Rinkevich, B., *Israel*
Rollins-Smith, L., *USA*
Rombout, J., *The Netherlands*
Secombes, C., *UK*
Söderhäll, K., *Sweden*
Stet, R., *The Netherlands*
Tomonaga, S., *Japan*
Turpen, J., *USA*
Vasta, G., *USA*
Vogel, C. W., *Germany*
Yoshino, T., *USA*

OFFICERS OF ISDCI

Clem, L. W., *USA*, Past President
Wick, G., *Austria*, President
Bayne, C. J., *USA*, President-Elect
Cohen, N., *USA*, Vice President (The Americas)

Horton, J. D., *UK*, Vice President (Europe and Africa)
Tomonaga, S., *Japan*, Vice President (Asia and Oceania)
Egberts, E., *The Netherlands*, Secretary/Treasurer
Secombes, C., *UK*, Secretary Education

Production Editor: Maria Hale (Elsevier Science)

Editorial Offices: L. William Clem, Department of Microbiology, University of Mississippi Medical Center, 2500 N. State Street, Jackson, MS 39216-4505, USA, Tel. (601) 984-1700; Fax (601) 984-1708; Gregory W. Warr, Department of Biochemistry and Molecular Biology, Medical University of South Carolina, 171 Ashley Avenue, Charleston, SC 29425-2211, USA, Tel. (803) 792-4321, Fax (803) 792-4322.

Publishing, Subscription, and Advertising Offices: Elsevier Science Ltd, The Boulevard, Langford Lane, Kidlington, Oxford, OX5 1GB, UK (Tel. 01865 843000; Fax 01865 843010) and Elsevier Science Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, USA.

Published Bimonthly: Annual Institutional Subscription Rate (1996): North, Central, and South America, U.S. \$823.00, Rest of World £517.00. Sterling prices exclude VAT. Non-VAT registered customers in the European Community will be charged the appropriate VAT in addition to the price listed. Prices include postage and insurance and are subject to change without notice. Members of the **International Society of Developmental and Comparative Immunology** receive personal subscriptions at a concessional rate; details of these rates are available upon request.

VOLUME 19, 1995

CONTENTS INDEX

Volume 19 Number 1

January/February 1995

- | | |
|--|---|
| <p>Gregory W. Warr</p> <p>Ryosuke Iijima, Jun Kisugi,
Masatoshi Yamazaki</p> <p>Baruch Rinkevich</p> <p>Nicolò Parrinello,
Matteo Cammarata,
Loredana Lipari, and
Vincenzo Arizza</p> <p>Jorunn B. Jørgensen
and Børre Robertsen</p> <p>B. M. Lidy Verburg-van
Kemenade, Franci A. A.
Weyts, Reno Debets, and
Gert Flik</p> <p>Steven H. Yoshida,
Tor B. Stuge,
Norman W. Miller,
and L. William Clem</p> <p>C. Sánchez, A. Alvarez,
A. Castillo, A. Zapata,
A. Villena, and J. Domínguez</p> <p>C. Le Morvan-Rocher,
D. Troutaud,
and P. Deschaux</p> <p>José C. E. Koumans-van
Diepen, Egbert Egberts,
Bernardo R. Peixoto, Nico
Taverne, and Jan H. W. M.
Rombout</p> | <p>Review</p> <p>1 The immunoglobulin genes of fish</p> <p>Full-length papers</p> <p>13 Antifungal activity of aplysianin E, a cytotoxic protein of sea hare (<i>Aplysia kurodai</i>) eggs</p> <p>21 Characteristics of allogeneic resorption in <i>Botrylloides</i> from the mediterranean coast of Israel</p> <p>31 Sphingomyelin inhibition of <i>Ciona intestinalis</i> (tunicata) cytotoxic hemocytes assayed against sheep erythrocytes</p> <p>43 Yeast β-glucan stimulates respiratory burst activity of atlantic salmon (<i>Salmo salar</i> L.) macrophages</p> <p>59 Carp macrophages and neutrophilic granulocytes secrete an interleukin-1-like factor</p> <p>71 Phylogeny of lymphocyte heterogeneity: Cytotoxic activity of channel catfish peripheral blood leukocytes directed against allogeneic targets</p> <p>79 Two different subpopulations of Ig-bearing cells in lymphoid organs of rainbow trout</p> <p>87 Effects of temperature on carp leukocyte mitogen-induced proliferation and nonspecific cytotoxic activity</p> <p>97 B Cell and immunoglobulin heterogeneity in carp (<i>Cyprinus carpio</i> L.); an immuno(cyto)chemical study</p> |
|--|---|

Volume 19 Number 2

March/April 1995

Review

Brian Dixon, Saskia H. M. van Erp, Pedro N. S. Rodrigues, Egbert Egberts, and René J. M. Stet

- 109 Fish major histocompatibility complex genes: An expansion

Full-length papers

Aswani K. Volety and Fu-Lin E. Chu

- 135 Suppression of chemiluminescence of eastern oyster (*Crassostrea virginica*) hemocytes by the protozoan parasite *Perkinsus marinus*

Euichi Hirose, Yasunori Saito, and Hiroshi Watanabe

- 143 Regeneration of the tunic cuticle in the compound ascidian, *Botrylloides simodensis*

Melanie R. Wilson, Eric van Ravenstein, Norman W. Miller, L. William Clem, Darlene L. Middleton, and Gregory W. Warr

- 153 cDNA sequences and organization of IgM heavy chain genes in two holostean fish

Melanie R. Wilson, David A. Ross, Norman W. Miller, L. William Clem, Darlene L. Middleton, and Gregory W. Warr

- 165 Alternate pre-mRNA processing pathways in the production of membrane IgM heavy chains in holostean fish

Volume 19 Number 3

May/June 1995

In Memoriam

- 179 M. Michael Sigel, 1921–1995

Full-length Papers

- Ulrike E. Zelck, Wilhelm Becker
and Christopher J. Bayne 181 The plasma proteins of *Biomphalaria glabrata* in the presence and absence of *Schistosoma mansoni*
- Pierre Valembois and
Maguy Lassègues 195 In vitro generation of reactive oxygen species by free coelomic cells of the annelid *Eisenia fetida andrei*: an analysis by chemiluminescence and nitro blue tetrazolium reduction
- Xueling Zhao, Michael T. Ferdig,
Jianyong Li and Bruce M.
Christensen 205 Biochemical pathway of melanotic encapsulation of *Brugia malayi* in the mosquito, *Armigeres subalbatus*
- L. Courtney Smith, Roy J. Britten
and Eric H. Davidson 217 Lipopolysaccharide activates the sea urchin immune system
- Armando Pérez-Torres, Diana A.
Millán-Aldaco and
Adrián Rondán-Zárte 225 Epidermal Langerhans cells in the terrestrial turtle, *Kinosternum integrum*
- Michael H. Shearer, Edward S.
Robinson, John L. VandeBerg
and Ronald C. Kennedy 237 Humoral immune response in a marsupial *Monodelphis domestica*: anti-isotypic and anti-idiotypic responses detected by species-specific monoclonal anti-immunoglobulin reagents
- Ihsan A. Ayoub and T. J. Yang 247 Development and characterization of an IL-2-dependent bovine CD4⁺ lymphoblastoid T-cell line
- Martin R. Jadus, Michael R.
Irwin, Beverly E. Barton,
Melanie C. N. Irwin and
H. Terry Wepsic 261 The identification of the neonatal NBXFO hybridoma cell and its mediator
- 279 Errata

Volume 19 Number 4

July/August 1995

Review

- Theresa Rieker, Josef Penninger, Nikolaus Romani and Georg Wick* 281 Chicken thymic nurse cells: an overview

Full-length Papers

- Jerome F. La Peyre, Fu-lin E. Chu and Wolfgang K. Vogelbein* 291 In vitro interaction of *Perkinsus marinus* merozoites with eastern and Pacific oyster hemocytes
- Liselotte E. Jensen, Torben E. Petersen, Steffen Thiel and Jens C. Jensenius* 305 Isolation of a pentraxin-like protein from rainbow trout serum
- Osamu Kurata, Nobuaki Okamoto and Yayoi Ikeda* 315 Neutrophilic granulocytes in carp, *Cyprinus carpio*, possess a spontaneous cytotoxic activity
- R. Wang and M. Belosevic* 327 The in vitro effects of estradiol and cortisol on the function of a long-term goldfish macrophage cell line
- T. J. Yang, Cynthia L. Baldwin, Michele Hanby-Flarida, J. F. Mather and E. D. Rabinovsky* 337 Monoclonal antibody BLT-1, specific for the bovine homologue of CD5, reacts with the majority of mature T cells, a subpopulation of B cells and stimulates T cell proliferation
- Reuben Kapur, Donald L. Evans and David T. Harris* 347 An evolutionarily conserved target cell antigen along with MHC class I molecules influences susceptibility to murine NK cell lysis

Volume 19 Number 5

September/October 1995

Full-length Papers

- Isao Morishima, Tomoki Horiba, Masao Iketani, Eri Nishioka and Yoshiaki Yamano* 357 Parallel induction of cecropin and lysozyme in larvae of the silkworm, *Bombyx mori*
- Mohamed H. Mansour* 365 Evidence for a family of schistosome glycan-binding lectins in *Biomphalaria alexandrina*
- Clare M. Peddie, Andrew C. Riches and Valerie J. Smith* 377 Proliferation of undifferentiated blood cells from the solitary ascidian, *Ciona intestinalis* in vitro
- Jan-Eirik Angell Killie and Trond Ø. Jørgensen* 389 Immunoregulation in fish II: inter-molecular-induced suppression of antibody responses studied by haptenated antigens in Atlantic salmon (*Salmo salar* L)
- Laurens N. Ruben, Adam R. Goodman, Rachel O. Johnson, Johnan A. R. Kaleeba and Richard H. Clothier* 405 The development of peripheral TNP-tolerance and suppressor function in *Xenopus laevis*, the South African clawed toad
- Arnaud de Guerra, Françoise Guillet, Jacques Charlemagne and Julien S. Fellah* 417 Identification of cDNA clones encoding HMG 2, a major protein of the Mexican axolotl hydrocortisone-sensitive thymocytes
- Anna Grabowska and Lois A. Lampson* 425 MHC expression in nonlymphoid tissues of the developing embryo: strongest class I or class II expression in separate populations of potential antigen-presenting cells in the skin, lung, gut, and inter-organ connective tissue

Volume 19 Number 6

November/December 1995

Full-length Papers

- Elizabeth Willott, Carl Lowenberger, Bruce M. Christensen, and Michael R. Kanost 451 Monoclonal antibodies against *Manduca sexta* hemocytes bind *Aedes aegypti* hemocytes: characterization of six monoclonal antibodies that bind hemocytes from both species
- David A. Raftos and Aimee Hutchinson 463 Cytotoxicity reactions in the solitary tunicate *Styela plicata*
- N. F. Neumann, D. Fagan, and M. Belosevic 473 Macrophage activating factor(s) secreted by mitogen stimulated goldfish kidney leukocytes synergize with bacterial lipopolysaccharide to induce nitric oxide production in teleost macrophages
- Pedro N. S. Rodrigues, Trudi T. Hermesen, Jan H. W. M. Rombout, Egbert Egberts and René J. M. Stet 483 Detection of MHC class II transcripts in lymphoid tissues of the common carp (*Cyprinus carpio* L.)
- Sandra S. Ristow, Leslie D. Grabowski, Paul A. Wheeler, David J. Prieur, and Gary H. Thorgaard 497 Arlee line of rainbow trout (*Oncorhynchus mykiss*) exhibits a low level of nonspecific cytotoxic cell activity
- Ian Gravenor, Trudy L. Horton, Pamela Ritchie, Emma Flint, and John D. Horton 507 Ontogeny and thymus-dependence of T cell surface antigens in *Xenopus*: Flow cytometric studies on monoclonal antibody-stained thymus and spleen
- Laura C. Barritt and James B. Turpen 525 Characterization of lineage restricted forms of a *Xenopus* CD45 homologue
- Ray Wilkinson, Mary Barton, and Ieva Kotlarski 537 Identification of koala T lymphocytes using an anti-human CD3 antibody
- Michael H. Shearer, Fred J. Stevens, F. A. Westholm, Hal B. Jenson, Tran C. Chanh, Kenneth D. Carey, Gary L. White, Alan Solomon and Ronald C. Kennedy 547 Serologic crossreactions among primate immunoglobulins

AUTHOR INDEX

VOLUME 19, 1995

- Alvarez, A., 79
Arizza, V., 31
Ayoub, I.A., 247
- Baldwin, C.L., 337
Barritt, L.C., 525
Barton, B.E., 261
Barton, M., 537
Bayne, C.J., 181
Becker, W., 181
Belosevic, M., 327, 473
Britten, R.J., 217
- Cammarata, M., 31
Carey, K.D., 547
Castillo, A., 79
Chanh, T.C., 547
Charlemagne, J., 417
Christensen, B.M., 205, 451
Chu, F.-L.E., 135, 291
Clem, L.W., 71, 153, 165
Clothier, R.H., 405
- Davidson, E.H., 217
Debets, R., 59
Deschaux, P., 87
Dixon, B., 109
Dominguez, J., 79
- Egberts, E., 97, 109, 483
Erp, S.H.M. van, 109
Evans, D.L., 347
- Fagan, D., 473
Fellah, J.S., 417
Ferdig, M.T., 205
Flik, G., 59
Flint, E., 507
- Goodman, A.R., 405
Grabowska, A., 425
Grabowski, L.D., 497
Gravenor, I., 507
Guerra, A. de, 417
Guillet, F., 417
- Hanby-Florida, M., 337
Harris, D.T., 347
Hermesen, T.T., 483
Hirose, E., 143
Horiba, T., 357
Horton, J.D., 507
Horton, T.L., 507
Hutchinson, A., 463
- Iijima, R., 13
Ikeda, Y., 315
Iketani, M., 357
Irwin, M.C.N., 261
Irwin, M.R., 261
- Jadus, M.R., 261
Jensen, L.E., 305
Jensenius, J.C., 305
Jenson, H.B., 547
Jianying Li, 205
Johnson, R.O., 405
Jørgensen, J.B., 43
Jørgensen, T.Ø., 389
- Kaleeba, J.A.R., 405
Kanost, M.R., 451
Kapur, R., 347
Kennedy, R.C., 237, 547
Killie, J.-E.A., 389
Kisugi, J., 13
Kotlarski, I., 537
Koumans-van Diepen, J.C.E., 97
Kurata, O., 315
- La Peyre, J.F., 291
Lampson, L.A., 425
Lassègues, M., 195
Le Morvan-Rocher, C., 87
Lidy Verburg-van Kemenade, B.M., 59
Lipari, L., 31
Lowenberger, C., 451
- Mansour, M.H., 365
Mather, J.F., 337
Middleton, D.L., 153, 165

- Millán-Aldaco, D.A., 225
Miller, N.W., 71, 153, 165
Morishima, I., 357

Neumann, N.F., 473
Nishioka, E., 357

Okamoto, N., 315

Parrinello, N., 31
Peddie, C.M., 377
Peixoto, B.R., 97
Penninger, J., 281
Pérez-Torres, A., 225
Petersen, T.E., 305
Prieur, D.J., 497

Rabinovsky, E.D., 337
Raftos, D.A., 463
Ravenstein, E. van, 153
Riches, A.C., 377
Rieker, T., 281
Rinkevich, B., 21
Ristow, S.S., 497
Ritchie, P., 507
Robertson, B., 43
Robinson, E.S., 237
Rodrigues, P.N.S., 109, 483
Romani, N., 281
Rombout, J.H.W.M., 97, 483
Rondán-Zárate, A., 225
Ross, D.A., 165
Ruben, L.N., 405

Saito, Y., 143
Sánchez, C., 79
Shearer, M.H., 237, 547
Smith, L.C., 217
Smith, V.J., 377

Solomon, A., 547
Stet, R.J.M., 109, 483
Stevens, F.J., 547
Stuge, T.B., 71

Taverne, N., 97
Thiel, S., 305
Thorgaard, G.H., 497
Troutaud, D., 87
Turpen, J.B., 525

Valembos, P., 195
VandeBerg, J.L., 237
Villena, A., 79
Vogelbein, W.K., 291
Volety, A.K., 135

Wang, R., 327
Warr, G.W., 1, 153, 165
Watanabe, H., 143
Wepsic, H.T., 261
Westholm, F.A., 547
Weyts, F.A.A., 59
Wheeler, P.A., 497
White, G.L., 547
Wick, G., 281
Wilkinson, R., 537
Willott, E., 451
Wilson, M.R., 153, 165

Xueling Zhao, 205

Yamano, Y., 357
Yamazaki, M., 13
Yang, T.J., 247, 337
Yoshida, S.H., 71

Zapata, A., 79
Zelck, U.E., 181

KEYWORD INDEX

VOLUME 19, 1995

- Acid phosphatase, 135
- Activation, 473
- Aedes aegypti*, 451
- Allogeneic, 71
- Alloimmunity, 21
- Ambystoma mexicanum*, 417
- Amphibian, 405
- Animal models, 497
- Antibodies, 1
- Antibody response, 389
- Antifungal protein, 13
- Antineoplastic protein, 13
- Aplysia kurodai*, 13
- Aplysianin E, 13
- Ascidians, 377
- Atlantic salmon, 43, 389
- ATPase histochemistry, 225

- B cells, 97
- B-cells, 525
- b2-m, 425
- Bactericidal activity, 43
- Bence Jones proteins, 547
- Biomphalaria alexandrina*, 365
- Biomphalaria glabrata*, 181
- Bombyx mori*, 357
- Botrylloides*, 21
- Bovine, 247
- Bovine CD5, 337
- Bovine CD5 homologue, 337
- Bovine lymphocytes, 337
- Bovine T-cell line, 247
- Bowfin, 153, 165

- Carp, 87, 315, 483
- Catfish, 71
- CD3 antibody, 537
- CD4⁺ T-cell line, 247
- CD45, 525
- cDNA, 417, 483
- cDNA sequence, 153
- Cecropin, 357
- Cell proliferation, 377
- Cell-aggregates, 43
- Chemiluminescence, 135, 195

- Chemotaxis, 327
- Chicken, 281
- Ciona intestinalis*, 31, 377
- Class II, 483
- Coelomocyte activation, 217
- Compound ascidian, 143
- Cortisol, 87, 327
- Crassostrea gigas*, 291
- Crassostrea virginica*, 135, 291
- Cuticle, 143
- Cytokine, 473
- Cytolysis, 463
- Cytotoxic cells, 71
- Cytotoxicity, 31, 87, 463

- Defense, 135
- Dendritic cells, 225
- Disulphide bonds, 305
- Dopa, 205
- Dopa decarboxylase, 205

- Eastern oyster, 291
- Ectotherms, 87
- Eisenia fetida andrei*, 195
- Epsilon, 537
- Estradiol, 327
- Evolution, 1, 109, 165, 547
- Evolutionarily conserved, 347
- Exon, 109

- Fibroblasts, 261
- Fish, 1, 43, 97, 109, 315
- Fish immunology, 59
- Flow cytometry, 507, 537
- Free radicals, 195
- Fucosyllactose determinant, 365

- Gar, 153, 165
- Gene expression, 1, 357
- Gene organization, 1
- Genes, 109
- Genetic manipulation, 497
- Glycoproteins, 181
- Gut, 425

- H_2O_2 , 315
Hapten-carrier antigens, 389
Head kidney, 315
Hemocyte, 291, 463
Hemocytes, 31, 135, 451
Hemolymph proteins, 181
Hemolysis inhibition, 31
Heterogeneity, 97
HMG box, 417
HMG1-2, 417
Holostean fish, 153
Holosteans, 165
Humoral immunity, 237
Hybridoma, 261
Hydrocortisone-sensitive thymocytes, 417
- IL-2, 247
IL-2-dependent cell line, 247
Immune defense, 195
Immune response, 237, 451
Immunity, 87
Immunocytochemistry, 97
Immunoglobulin, 79, 97, 165
Immunoglobulin gene organization, 153
Immunoglobulins, 1, 547
Immunohistochemistry, 537
Immunoregulation, 389
Immunosuppression, 261, 327
Inflammation, 327
Insect, 451
Insect immunity, 205, 357
Integument, 143
Interleukin-1, 59
Intermolecular antigen-induced suppression, 389
Intron, 109
Invertebrate, 31
Invertebrate animal, 13
Invertebrate immunity, 21, 463
Invertebrates, 195
Isolectins, 365
Israel, 21
- K562, 315
K562 cells, 463
Koala lymphocytes, 537
- L chain subgroups, 547
Langerhans cells, 225
Lectin subunits, 365
- Lectins, 181
Leukocytes, 79
LFA-1, 71
Light chains, 79
LPS, 217, 473
Lung, 425
Lymphocyte subsets, 337
Lymphocyte-like cells, 377
Lymphoproliferation, 87
Lysis, 347
Lysozyme, 357
- Macrophage, 473
Macrophage cell line, 327
Macrophage colony-stimulating factor, 261
Macrophages, 59, 261
Major histocompatibility complex, 109
Manduca sexta, 451
Marine mollusk, 13
Marsupial, 237
Melanization, 205
Metamorphosis, 405
MHC, 483
MHC class I and class II, 425
MHC *Cyca-DAB*, 483
Mitogens, 377
MLR, 377
Monoclonal antibodies, 79, 507, 547
Monoclonal antibody, 451, 525
Mosquito, 451
Myeloid cells, 525
- N-linked glycans, 365
Natural killer activity, 315
NBT reduction, 195
Neoglycoproteins, 181
Neonatal tolerance, 261
Neutrophilic granulocytes, 59, 315
Nitric oxide, 327, 473
NK cells, 347
Nonspecific cytotoxic cells, 497
Northern blot analysis, 261
- Oligomorphic gene family, 365
Oncorhynchus mykiss, 305
Ontogeny, 79, 97
Opossum, 237
- Pacific oyster, 291

- PCR, 417, 483
Pentraxin, 305
Peptidoglycan, 357
Peripheral immune tolerance, 425
Perkinsus marinus, 135, 291
pH, 143
Phagocytosis, 327
Phenol oxidase, 205
Phylogenetic analysis 109
Primates, 547
Profilin, 217
Protease, 143
Protease inhibitor, 143
Protozoa, 291

Rainbow trout, 79, 305, 497
Rat embryo, 425
Reactive oxygen intermediates, 135
Recognition, 347
Regeneration, 143
Respiratory burst, 43, 327
RNA processing, 165

Schistosoma mansoni, 181, 365
Sea hare, 13
Sea urchin, 217
Selfnonself recognition, 21
Serum amyloid P-component, 305
Sheep erythrocytes, 31
Silkworm, 357
Skin, 425
Sphingomyelin inhibition, 31
Spleen, 537

Spontaneous cytotoxic activity, 315
Stress, 87
Strongylocentrotus purpuratus, 217
Superoxide anion, 43, 195
Suppression, 135
Suppressor cells, 261
Suppressor function, 405

T cell ontogeny, 507
T cell selection, 281
Target antigen, 347
TD and TI antigens, 389
Teleost, 79, 305, 473
Temperature, 87
Thymectomy, 507
Thymic nurse cells, 281
Thymocytes, 525
Thymus, 281
Tissue distribution, 483
TNP-tolerance, 405
Transplantation, 425
Tunic, 143
Tunicata, 21
Tunicate (Urochordata Ascidiacea), 463
Tunicate, 31
Turtle skin, 225
Tyrosine, 205
Tyrosine derivatives, 205
Tyrosine phosphatase, 525

Xenopus, 507, 525
Yeast glucan, 43

• BACK ISSUES OF • THIS JOURNAL

Back issues of this and all other Elsevier Science journals are available in hard copy. New subscribers to a journal may purchase back issues of that publication in hard copy edition at 25% discount off the standard price. Elsevier Science maintains stocks of back issues and orders may be placed with confidence at your nearest Elsevier Science office. Should any issue of a volume be temporarily out of stock at the time of ordering, a high quality photoduplicated copy will be supplied at no extra charge to complete your order.

SAVE UP TO 25% BY PURCHASING COMPLETE SETS

Customers wishing to purchase complete sets can do so at a saving of 25% off the individual volume price.

MICROFORM EDITIONS

Back issues in microform of Elsevier Science research journals are also available. For further information please apply to your nearest Elsevier Science office.

BACK ISSUES PRICE LIST

Full details of the rates of back issues of all Elsevier Science journals can be found in our Back Issues Price List. Please contact your nearest Elsevier Science office for a copy.



Elsevier Science Ltd, The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, UK
Telephone: +44 01865 843699 • Fax: +44 01865 843911 • E-Mail: freesamples@elsevier.co.uk
Elsevier Science Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, USA
Telephone: +1 914 524 9200 • Fax: +1 914 333 2444

C0555/p2

Did you know that if you are a
contributor to any
Elsevier Science Book or Journal
you are entitled to

30%
Discount on all
our Books*?



Elsevier



Pergamon



North
Holland



Excerpta
Medica

*(except multi-volume reference works)

Contact your nearest Elsevier Science
office in order to obtain a subject
catalogue

Elsevier Science Ltd, The Boulevard, Langford Lane,
Kidlington, Oxford, OX5 1GB, UK
Elsevier Science Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, USA

